

REMARKS

The Applicants note the Examiner's objection to the "priority" language, and now amend the specification to accurately reflect the priority surrounding the present application. See Office Action, pg. 2. The Applicants also note the Examiner's objection to the grammatical error within Claim 84, and now correct it. See Office Action, pg. 3.

The Applicants note the Examiner's objection to the drawings filed August 28, 2001, and will provide formal drawings upon issuance of notice of allowance.

Claims 1-70 and 95-123 have been cancelled. Claims 71-94 are pending in the present case and stand rejected by the Examiner. The Claims stand rejected under 35 U.S.C. §112, 35 U.S.C. §102(b), and 35 U.S.C. §103(a). Claims 71, 84 and 94 are currently amended. Each rejection is addressed below.

Applicants note that all amendments of Claims presented herein are made without acquiescing to any of the Examiner's arguments or rejections, and solely for the purpose of expediting the patent application process in a manner consistent with the PTO's Patent Business Goals (PBG),¹ and without waiving the right to prosecute the amended Claims (or similar Claims) in the future.

I. Claims 71-94 Are Rejected Under 35 U.S.C. § 112

The Examiner rejects Claims 71-94 under 35 U.S.C. § 112 "as being indefinite for the invention." Office Action, pg. 3. In particular, the Examiner states "the preamble of claim 71 fails to particularly point out and distinctly claim the subject matter which applicant regards as states at line 1 '[a] method of detecting a nucleic acid', and concludes at section 'd)' 'detecting the cleavage of said complex'. The conclusion of the claim does not result in the stated intention of the preamble, and thus the claim is vague and indefinite." Office Action, pg. 3. The Applicant's respectfully disagree, however, to expedite prosecution, Claim 71 is now amended to further establish that the detecting of the cleavage of the second complex thereby results in detecting a nucleic acid. As such, "section d" of amended Claim 71 pertains to the stated intention of the preamble, and the rejection should be withdrawn.

The Examiner rejects Claim 94 under 35 U.S.C. § 112 for reciting "the limitation 'said duplex region' in line 2. There is insufficient antecedent basis for this limitation in the claim."

¹ 65 Fed. Reg. 54603 (Sept. 8, 2000).

Office Action, pg. 3. The Applicants now amend Claim 94 and replace “said duplex region” with “a duplex region.” As such, there no longer is an antecedent basis problem with Claim 94, and the rejection should be withdrawn.

II. Claims 71-75, 77-81, 87, 88 and 92-94 Are Rejected Under 35 U.S.C. § 102(b)

The Examiner rejects Claims 71-75, 77-81, 87, 88 and 92-94 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No.: 4,994,368 (hereinafter Goodman). The Applicants respectfully disagree with the Examiner’s rejections. The rejection is discussed in view of the amended claims.

The Examiner argues that “Goodman et al. teach at the abstract a method of combining a cleavage means with a primary (target) nucleic acid sequence which is hybridized to two nucleic acid sequences (first and second nucleic acid sequences) (the hybridized nucleic acids result in a first complex) with the primary (target) nucleic acid having two adjacent regions for the detection of polynucleotide analyte. The nucleic acid (first nucleic) which is hybridized to the (target) primary nucleic acid is cleaved to produce a product nucleic acid (first cleavage product) which is then hybridized to another nucleic acid sequence (the third nucleic acid sequence) to form a second complex. The second complex is then cleaved by the cleavage means to produce another cleavage product (second cleavage product = cleaved third nucleic acid). The second cleavage product is detected.” Office Action, pg. 4.

Goodman does not anticipate the present application because it fails to teach each and every element of the present application.² A claim is not anticipated by a prior art reference when that reference fails to describe each and every element as set forth in the contested claim. *Verdegall Bros. v. Union Oil Co. of California*, 814 F.2d 628 (Fed. Cir. 1987). Here, an element of amended Claim 71 comprises providing first and second oligonucleotides which have different nucleic acid sequences. Goodman also teaches providing first and second oligonucleotides (denoted as primary polynucleotide sequence). See Goodman, Claims 1, 18, 30, 51, 52, 53, 60, 67, 68. However, Goodman teaches providing *identical* first and second oligonucleotide nucleic acid sequences. First and second oligonucleotides possess identical nucleic acid sequences. See Goodman Specification, Examples, and Claims 1, 18, 30, 51, 52, 53, 60, 67, 68. Indeed, the Goodman amplification assay depends upon the providing of first and

² The Applicants believe the Goodman reference is very different than the presently claimed invention. In particular, the Goodman reference does not teach a nucleic acid detection method comprising detecting a liberated 5’ portion of a first oligonucleotide that subsequently hybridizes with a third oligonucleotide to form a second complex and then cleaving said second complex. However, for arguments sake, the Applicants will entertain an overbroad interpretation of the Goodman reference, as Goodman still does not teach all of the elements of the present claims.

second oligonucleotides with identical nucleic acid sequences, and will fail if the first and second oligonucleotides are not identical. As such, the Goodman assay cannot anticipate an invention teaching first and second oligonucleotides possessing different nucleic acid sequences. Accordingly, the present invention is not anticipated by Goodman, and the Applicants respectfully request that this anticipation rejection be withdrawn.

III. Claims 71-94 Are Rejected Under 35 U.S.C. § 103(a)

Claims 71-81, 87, 88 and 92-94 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Goodman in light of U.S. Patent No. 5,994,056 (hereinafter Higuchi). Office Action, pg. 5. In particular, the Examiner argues that “it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to modify the method of nucleic acid cleavage and nucleic acid detection by fluorescence of Goodman et al. with the alternative method of detection by fluorescence quenching as taught by Higuchi.” Office Action, pg. 7.

Claims 71-88 and 92-94 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Goodman in light of U.S. Patent No.: 5,210,015 (hereinafter Gelfand) and Higuchi. Office Action, pg. 7. In particular, the Examiner argues that “it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to modify the method of nucleic acid cleavage and nucleic acid detection by fluorescence quenching of Goodman et al. and Higuchi et al. with the 5’ nuclease enzyme which is comprised in a thermostable DNA polymerase from an organism of the genus *Thermus* used in a method of cleaving a first nucleic acid which has been hybridized to a target nucleic acid as taught by Gelfand et al. for the expected benefit of maintaining enzyme activity at the higher temperatures required for hybridization of nucleic acids.” Office Action, pg. 8.

Claims 71-94 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Goodman in view of Higuchi, Gelfand and U.S. Patent No.: 4,935,357 (hereinafter Szybalski) (regarding Claims 71-94). Office Action, pg. 9. In particular, the Examiner argues that “it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to modify the method of nucleic acid cleavage and nucleic acid detection by fluorescence quenching of Goodman et al., Higuchi et al. and Gelfand et al. by substituting the nucleotide “adapter” comprising a hairpin structure adjacent to a single stranded 3’ arm (adjacent to the duplex region) as taught by Szybalski.” Office Action, pg. 10.

The Applicants respectfully disagree and assert that the Examiner does not present a *prima facie* showing of *prima facie* obviousness. To establish *prima facie* obviousness of a claimed invention, *all* the claim limitations must be taught or suggested by the prior art. *In re*

Royka, 490 F.2d 981 (CCPA 1974). Here, the Goodman, as modified by Higuchi, Gelfand, and Szybalski references, in combination or separately, fail to teach of a nucleic acid detection method comprising providing first and second oligonucleotides each possessing different nucleic acid sequences in the context of the formation and cleavage of first and second complexes. The present invention is therefore nonobvious, and the Applicants respectfully request the rejections be withdrawn.

CONCLUSION

All grounds of rejection of the Office Action of June 17, 2003 having been addressed, it is respectfully submitted that the invention as claimed fully meets all requirements and that the claims should be passed to allowance.

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